

an optical scanning device according to claim 18; and
a printer controller for converting code data input from an external device
into an image signal and feeding the image signal to said optical scanning device.

REMARKS

This application has been carefully reviewed in light of the Office Action dated December 3, 2003 (Paper No. 9). Claims 1 to 20 are currently in the application, with Claims 1, 7, 15 and 18 being the independent claims. Reconsideration and further examination are respectfully requested.

New formal drawings incorporating the approved drawing changes set forth in the Request For Approval Of Drawing Changes dated September 20, 2002, together with a Letter Transmitting Formal Drawings, accompany this Amendment.

The title of the invention was objected to for allegedly not being descriptive of the invention. In response, Applicant has provided a new title.

Claims 1, 7, 15 and 18 were rejected under 35 U.S.C. § 102(b) over U.S. Patent No. 5,161,047 (Tomita); Claims 2, 8, 10 and 11 were rejected under § 103(a) over Tomita; Claims 3 and 9 were rejected under § 103(a) over Tomita in view of U.S. Patent No. 6,288,818 (Yoshimaru); and Claims 4 to 6, 12 to 14, 16, 17, 19 and 20 were rejected under § 103(a) over Tomita in view of U.S. Patent No. 5,750,986 (Genovese). Applicant has carefully considered the Examiner's comments together with the applied references and respectfully submits that the claims herein are patentably distinguishable over the applied references for at least the following reasons.

The present invention concerns an optical scanning device in which a light beam emitted from a light source is deflected and focused on an effective scanning area of a scanning surface to perform a line scanning. According to the invention, the light source is continuously kept lit between a line scanning and the next line scanning. In this manner, delays associated with the rise time of the light source can be reduced during scanning of the scanning surface.

With reference to particular claim language, independent Claim 1 concerns an optical scanning device that includes a first optical system, including a light source, for directing a light beam emitted from the light source to deflection means. A second optical system focuses the light beam deflected by the deflection means to perform a line scanning on an effective scanning area of a scanning surface. The light source is continuously kept lit between a line scanning and the next line scanning. A light shield member is positioned between the deflection means and the scanning surface to block at least a portion of the light beam emitted during the period of time when the light source is continuously kept lit between a line scanning and the next line scanning.

Independent Claim 7 concerns an optical scanning device that includes a first optical system, including a light source, for directing a light beam emitted from the light source to deflection surface of deflection means in a beam width wider than the width of the deflection surface in the main scanning direction. A second optical system focuses the light beam deflected by the deflection means to perform a line scanning on an effective scanning area of a scanning surface. The light source is continuously kept lit between a line scanning and the next line scanning. A light shield member is positioned between the

deflection means and the scanning surface to block at least a portion of the light beam emitted during the period of time when the light source is continuously kept lit between a line scanning and the next line scanning.

Independent Claim 15 concerns an optical scanning device that includes a first optical system, including a light source, for directing a light beam emitted from the light source to deflection means. A second optical system focuses the light beam deflected by the deflection means to perform a line scanning on an effective scanning area of a scanning surface. The light source is continuously kept lit between a line scanning and the next line scanning.

Independent Claim 18 concerns an optical scanning device that includes a first optical system, including a light source, for directing a light beam emitted from the light source to a deflection surface of deflection means in a beam width wider than the width of the deflection surface in the main scan direction. A second optical system focuses the light beam deflected by the deflection means to perform a line scanning on an effective scanning area of a scanning surface. The light source is continuously kept lit between a line scanning and the next line scanning.

The applied references are not understood to disclose or suggest the foregoing features of the present invention. In particular, the applied references are not understood to disclose or suggest at least the feature of keeping the light source continuously lit between a line scanning and the next line scanning.

As discussed in Applicant's previous response, Tomita concerns an optical scanner that focuses a light beam on a target surface, where portions of light diffracted by

an aperture member are blocked from reaching the target surface. The Office Action has contended that the light source in Tomita continuously generates the light beam for scanning the target surface. The Office Action also has contended that since Tomita does not discuss functional elements for use in preventing the light source from remaining continuously lit, one skilled in the art would assume that the light source is kept continuously lit once it is initially turned on. Applicant respectfully disagrees with these assumptions.

Tomita describes the focusing and control of a light beam to form a beam spot on a target surface, as discussed in column 3, line 56, to column 4, line 11. Since Tomita describes the formation of a beam spot, rather than an exposed line or an exposed area, on the target surface when the operation of the optical scanner is discussed, Tomita is understood to describe emission of the light beam at particular moments of scanning the target surface and not the continuous emission of the light beam. In addition, even if Tomita did refer to the light beam as being continuously emitted, which Applicant does not concede, Tomita is understood to discuss only the scanning of the light beam in the main scanning range on the target surface. Tomita is not understood to discuss the scanning of the light beam outside of the main scanning range, and in particular is not understood to discuss emission of the light beam during periods of time between scanings of the target surface.

With respect to the understanding of one of ordinary skill in the art, Applicant respectfully submits that there is nothing disclosed in Tomita that would lead to the assumption that the light source in Tomita is kept continuously lit once it is initially

turned on. As mentioned in column 1, lines 6 and 7, the optical scanner in Tomita is for use in image recording equipment. While there may not be any disclosure in Tomita concerning a functional element for controlling the operation of the light source, one of ordinary skill in the art would understand that the light source is modulated to form beam spots at different positions on the target surface in order to form an image thereon. Accordingly, the light source would not be kept continuously lit once it is initially turned on when used in image recording equipment, and Tomita is not understood to disclose anything that would suggest that the light source is not turned off between scanings of the target surface. Therefore, Applicant respectfully submits that the assumption that one of ordinary skill in the art would understand Tomita to keep the light source continuously lit once it is turned on is overbroad and incorrect.

For the foregoing reasons, Tomita is not understood to disclose or suggest keeping the light source continuously lit between a line scanning and the next line scanning.

Yoshimaru and Genovese, which were cited in the Office Action in the rejections of certain dependent claims, are not understood to overcome the foregoing deficiencies of Tomita. Specifically, Yoshimaru, which was cited for its disclosure of a light beam being incident at an oblique angle to a deflection surface, and Genovese, which was cited for its disclosure of a photosensitive body together with development, transfer and fixing means, either alone or in combination with Tomita, are not understood to disclose or suggest the feature of keeping the light source continuously lit between a line scanning and the next line scanning.

Accordingly, independent Claims 1, 7, 15 and 18 are believed to be allowable over the applied references. Reconsideration and withdrawal of the § 102(b) rejection of Claims 1, 7, 15 and 18 are respectfully requested.

The other claims in the application are dependent from the independent claims discussed above and are therefore believed to be allowable over the applied references for at least the same reasons. Because each dependent claim is deemed to define an additional aspect of the invention, however, the individual consideration of each on its own merits is respectfully requested.

In view of the foregoing amendment and remarks, the entire application is believed to be in condition for allowance and such action is respectfully requested at the Examiner's earliest convenience.

Applicant's undersigned attorney may be reached in our Costa Mesa, California, office by telephone at (714) 540-8700. All correspondence should be directed to our address given below.

Respectfully submitted,



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Application No.: 09/837,213
Attorney Docket No.: 03560.002776

VERSION WITH MARKINGS TO SHOW CHANGES MADE TO CLAIMS

1. (Twice Amended) An optical scanning device comprising:

a first optical system, including a light source, for directing a light beam emitted from the light source to deflection means; and

a second optical system for focusing the light beam deflected by the deflection means and performing a line scanning on an effective scanning area of a scanning surface,

wherein the light source is continuously kept lit [when scanning outside of the effective scanning area] between a line scanning and the next line scanning and wherein a light shield member is positioned between the deflection means and the scanning surface to block at least a portion of the light beam emitted during the period of time when the light source is continuously kept lit [when scanning outside of the effective scanning area] between a line scanning and the next line scanning.

7. (Twice Amended) An optical scanning device comprising:

a first optical system, including a light source, for directing a light beam emitted from the light source to a deflection surface of deflection means in a beam width wider than the width of the deflection surface in a main scan direction; and

a second optical system for focusing the light beam, deflected by the deflection means and performing a line scanning on an effective scanning area of a

scanning surface,

wherein the light source is continuously kept lit between a line scanning and the next line scanning [when scanning outside of the effective scanning area] and wherein a light shield member is positioned between the deflection means and the scanning surface to block at least a portion of the light beam emitted during the period of time when the light source is continuously kept lit between a line scanning and the next line scanning [when scanning outside of the effective scanning area].

15. (Amended) An optical scanning device comprising:

a first optical system, including a light source, for directing a light beam emitted from the light source to deflection means; and

a second optical system for focusing the light beam deflected by the deflection means and performing a line scanning on an effective scanning area of a scanning surface,

wherein the light source is continuously kept lit [when scanning outside of an effective scanning area] between a line scanning and the next line scanning.

18. (Amended) An optical scanning device comprising:

a first optical system, including a light source, for directing a light beam emitted from the light source to a deflection surface of deflection means in a beam width wider than the width of the deflection surface in a main scan direction; and

a second optical system for focusing the light beam deflected by the deflection means and performing a line scanning on an effective scanning area of a

scanning surface,

wherein the light source is continuously kept lit [when scanning outside of an effective scanning area] between a line scanning and the next line scanning.

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